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Hospital Management Staffing and Training Issues

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Hospitals dominate health care, so making hospitals more efficient is crucial to better health care delivery. The authors suggest an agenda for research.

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Hospitals dominate health care in most parts of the world and for a variety of reasons are likely to continue being a key factor in the overall performance of the health care system. Any efforts to improve this performance must therefore give greater hospital efficiency the highest priority.

After discussing key issues of managerial, clinical, and production efficiency, Frenk, Ruclas, and Donabedian suggest an agenda for research, which would include two types of research:

- Observational studies that document levels of hospital performance and correlate them with organizational design and environmental variables. It is especially important to devise and test sensitive, specific indicators of managerial, clinical, and service production efficiency.
- Comparative intervention studies that would introduce planned change in hospitals and assess the consequences — using control groups as well as cost-benefit and cost-effectiveness analyses.

The mostly highly recommended subjects for research, in order of priority, are:

- Good descriptive studies of the hospital system and the main aspects of organization design — to chart, for example, the formal and informal relations among managers and clinicians, the frequency of different arrangements for internal communication, types of departmentalization, and management systems.
- The systematic design, testing, and study of explicit quality monitoring and assurance systems. Such studies should include the analysis of interactions between managers and clinicians, especially as they constrain clinical autonomy and decision making.
- Studies to determine which social, personal, organizational, and educational factors account for managerial skill and success in managing a hospital — to get the information needed for the recruitment and training of successful hospital managers.
- Studies of the structure and dynamics of medical labor markets, to improve understanding of why there is an oversupply of doctors in so many different countries.

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INTRODUCTION

Throughout the world, hospitals have come to epitomize modern medical care. For many years, a major policy concern in the health arena was to provide communities with enough hospitals. More recently, however, the focus of concern has shifted to the overdominant role of the hospital within the health system. In developed countries there is an excess of beds. In most developing countries the concern is that, even without having fully satisfied overall requirements for hospitals, they already absorb such a high proportion of resources that they seriously threaten any effort to achieve full coverage of the population. Furthermore, it is widely believed that a health care system centered around hospitals is intrinsically incompatible with the geographic, economic, and cultural attributes of many populations. In addition, the mix of services offered by hospitals emphasizing acute, episodic, and curative activities -- is believed to poorly match the prevailing epidemiologic profile and the population needs for preventive and continuous care. This inconsistency is becoming even more marked as an increasing number of countries undergo a profound epidemiologic transition, whereby chronic ailments are becoming more important, with the ensuing requirements for long-term services that most general hospitals have traditionally had difficulty supplying (Omran 1971; Frederiksen 1969). As with physician supply hospitals seem to have moved from deficit to excess without ever having achieved some kind of equilibrium (Starr 1982, pp. 421-427).

Evidently, a health system dominated by hospitals is not the only possible organizational model. In fact, for most of the history of health

care hospitals represented a rather marginal element. As Foucault (1978) points out, during a long period of time the hospital was a nonmedical institution, and medicine was not a hospital-based profession. "The hospital as a therapeutic instrument is a relatively modern concept, dating from the end of the eighteenth century" (Foucault 1978). Since then, a number of social, economic, scientific, and technologic changes, which have been summarized elsewhere (in particular by Rosen 1972), have made the hospital the "fulcrum of care" (Berki 1972, p. 8).

The dominance of hospitals is one of the most striking features of convergence among the health systems of countries at all levels of economic development and with all forms of political representation (Mechanic 1975; Frenk and Donabedian 1986). Together with the important progress that they have produced, hospitals have also given rise to the set of concerns mentioned above. As the ambitious goal of achieving Health for All by the Year 2000 is universally adopted, it becomes increasingly crucial to understand the functioning of that segment of the health care system where most resources are spent. UNICEF has estimated that, while in many countries 85% of the national health budget is spent in hospitals, these serve less than 10% of the population. For example, in Mexico hospitals represent less than 1% of all the health care facilities of the Ministry of Health, but employ over 40% of the Ministry's physicians and nurses (Secretaria de Salud 1985, pp. 213-319).

Many countries face, therefore, a double concentration of health care: geographic concentration in large urban areas and technological concentration in large hospitals (Soberon et.al. 1986). The problem is further compounded by the effects of concentration on the distribution of resources. For instance, in many countries efforts at regionalization have

been bedeviled by the tendency of hospitals to mix all three levels of care. This is in part due to the weakness of primary health care (PHC), which makes it necessary for the outpatient departments of many hospitals to become major providers of first-contact care. Thus, the concentration of resources in hospitals is both a cause and an effect of the weakness of PHC. Another reason for the mixture of levels of care is the tendency towards "tertiarization" of many general hospitals. In either case, the end result is the lack of clear patterns of patient referral, the difficulty of assigning defined population bases to different types of health care facilities, the coexistence in the same facility of cases with wide variations of complexity, and the inefficient use of resources.

Because their central position is likely to be maintained in the foreseeable future, hospitals will continue to be major determinants of the overall performance of the health system. Any efforts to improve this performance must therefore give the highest priority to hospital efficiency. This is the perspective that guides the present paper. The purpose of the paper is to discuss some fundamental issues of hospital management, with special emphasis on staffing and training. To achieve this, the paper is divided into three parts. First, an analytical framework is presented that helps orient the discussion. Hospitals are conceived of as complex organizations, with goals, tasks, control systems, and relationships of authority that are articulated in both formal and informal ways (Scott 1966). The performance of the hospital is conceptualized in terms of three different types of efficiency: managerial, clinical, and production efficiency. We also analyze the elements of the internal organization design and of the external environment that influence the level of performance are analyzed. Second, some issues that refer to each of the

elements of the analytical framework are identified. Finally, a research agenda that may help to better understand the issues and thereby to improve the performance of hospitals is presented.

ANALYTICAL FRAMEWORK

Figure 1 presents a schematic model for the study of hospital efficiency. This model begins by positing that there are two major groups of actors in the hospital: managers and clinicians. Each of the two major types has many different subgroups. Among the managers, there are distinct levels, ranging from members of the directorate, to senior executives, to the middle and lower echelons. Clinicians, on the other hand, comprise a variety of professions. Nevertheless, in our discussion we will focus on physicians, since they still constitute the principal group of providers, in terms of number, importance, autonomy, and economic consequences of the decisions that they make. Insofar as the same person can have both managerial and clinical functions, we speak of roles rather than occupational groups (Allison et.al. 1983). This is particularly important for physicians, who often occupy important administrative positions in hospitals. For the purposes of this paper, when a physician assumes the managerial role, he or she will be considered a manager. As we shall discuss later on, one of the issues in health care organizations is precisely the convenience of having physicians perform administrative functions. For the time being, however, the point is that the actors are conceived of in terms of their roles and not of their professional origins.

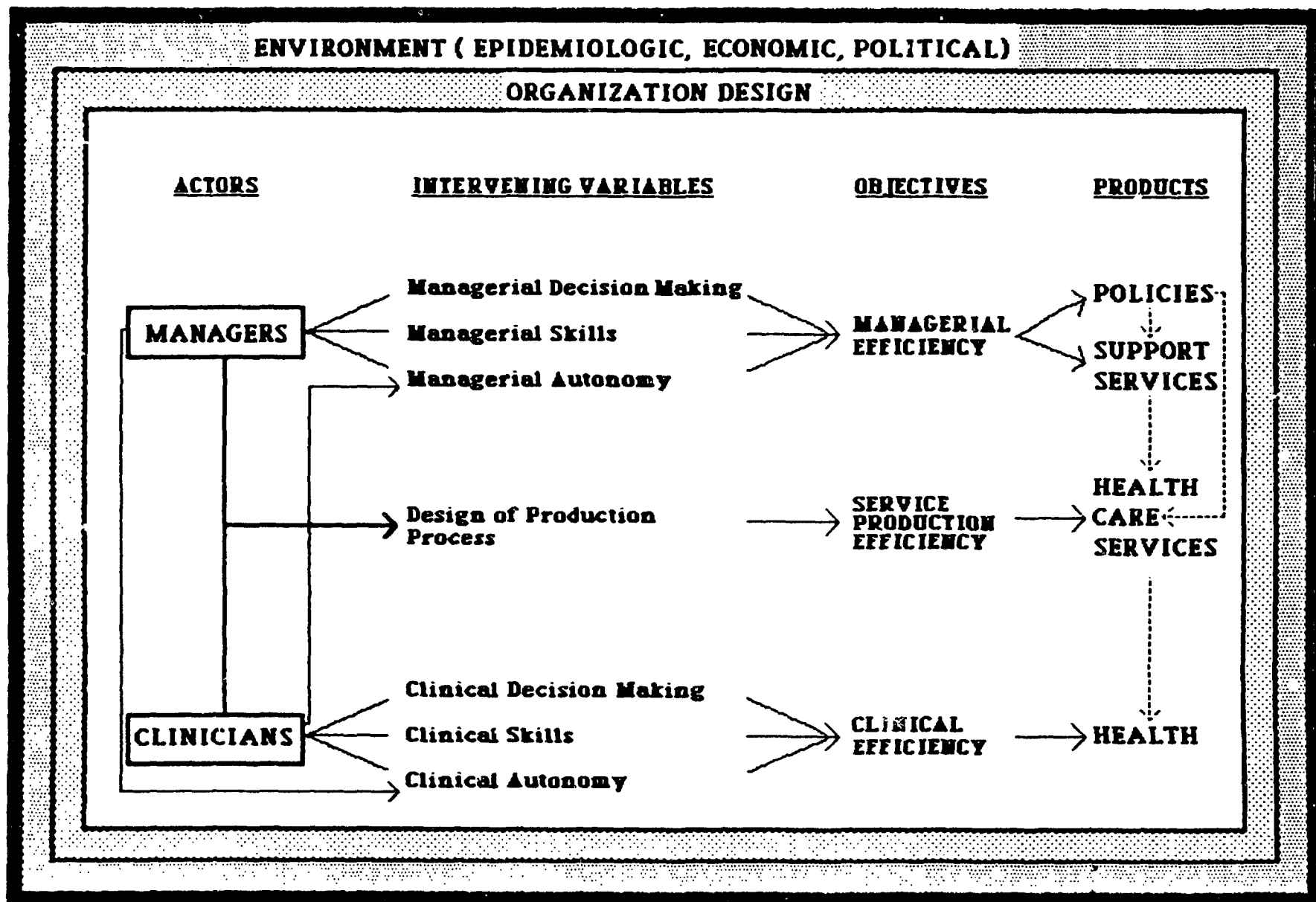


Figure 1.

CONCEPTUAL FRAMEWORK FOR THE STUDY OF HOSPITAL EFFICIENCY

Figure 1 shows the interaction of the two basic groups of actors in the framework of a complex organization, the hospital. This interaction is affected by the specific design that the organization adopts. Furthermore, the organization itself is surrounded by an environment, where it interacts with other organizations and with formal and informal groups of clients. Through its environment, the organization is shaped, as we shall see later on, by complex epidemiologic, economic, and political processes.

Within the context of specific environments and organizational designs, the core of Figure 1 portrays a dynamic conception of the interaction between managers and clinicians. Through the operation of certain intervening variables, the interaction generates a set of products. The quantity and quality of these products is determined by the efficiency of the organization. In this respect, we propose that there are three types of efficiency, which ought to be kept analytically distinct. We call these clinical efficiency (CE), service production efficiency (PE), and managerial efficiency (ME).

The distinction between clinical efficiency and production efficiency has been proposed by Donabedian et.al. (1982). Basically, CE refers to the production of health, however defined, whereas PE has to do with the production of health services. Thus, CE is the extent to which a physician "combines, times, and sequences services...to produce the greatest increment of health, given a specified available or permissible expenditure" (Donabedian et.al., 1982). The combination, timing, and sequencing of health services in the management of a case is called a "strategy of care" by these authors. Hence, CE is the efficiency of the strategies of care. The clinically efficient strategy will be the one that produces the largest improvement of health for a given amount of expenditure or, alternatively,

the one that produces a certain level of health with the least costly utilization of resources. Needless to say, the improvement in health status must be attributable to the strategy of care. It is clear that CE is a component of the quality of care. The concept has the merit of combining health outcomes with resource constraints in the definition of quality. As a component of quality, CE is determined by the appropriateness of the clinical decisions to select a certain strategy of care, by the skill with which the strategy is carried out, and by the degree of clinical autonomy, i.e., the extent to which the clinician can control the content of his/her own work (Freidson 1970, pp. 71-84).

Even when a physician has selected the optimal strategy of care, there may be inefficiencies in the process of producing the services that form this strategy, leading to a waste of resources. For example, there may be delays in processing or reporting laboratory tests, or there may be a low occupancy rate, or the hospital may be using more costly personnel than warranted by the complexity of tasks. Donabedian et.al. (1982) suggest that such inefficiencies in the production of services should not be considered a part of the definition of quality, although they certainly influence the level of quality that is achieved per dollar of expenditure. As can be seen, PE is dependent, not on clinical judgement, but on the proper design of the service production process, so that the amount of services specified by a certain strategy of care can be produced at the lowest cost.

The concepts of clinical efficiency and service production efficiency introduce a useful distinction in the analysis of the substantive function of a hospital, i.e., the production of services that will generate an improvement of health. In a parallel fashion to the notion of clinical efficiency, Figure 1 proposes the concept of managerial efficiency.

FIGURE 2

DIMENSION OF ANALYSIS	TYPE OF RELATIONSHIP	
	External	Internal
Political	Relations with the State	Power and authority relations between managers and clinicians
Economic	<ul style="list-style-type: none"> - Overall economic conditions - Product and factor markets 	Characteristics of the production process

TPOLOGY OF VARIABLES THAT AFFECT HOSPITAL PERFORMANCE

Depending on the level of the manager, the product of ME are policies or support services. As in the case of CE, ME depends on the appropriateness of managerial decisions, the skill in managing the organization (as evidenced, for example, in styles of leadership, capacity to solve conflict, handling of time, financial ability, etc.), and managerial autonomy, either from the clinicians or from officials at higher levels of decision making.

The two main actors in our model -- clinicians and managers -- interact in complex ways. We have already seen that each group can interfere with the autonomy of the other. In addition, because of the characteristics of medical work, which is dominated by professionals, both groups participate in the design of the production process and therefore determine PE.

The relationship between managers and clinicians does not occur in a vacuum. It takes place in the context of an internal organization design, which in turn is surrounded by an external environment. Following the work of Zald (1970), we can classify the variables that operate inside or outside the organization into economic and political. Figure 2 presents a framework for analyzing these relationships. There are many potential variables for each cell in Figure 2. However, we have included only those that are most pertinent for the analysis of the contextual factors that affect hospital efficiency.

Let us first briefly identify the variables that define the exchanges of a given hospital with its external environment. On the political dimension of analysis, the main set of relationships refers, in most countries, to those that the hospital must establish with the State, either because the hospital is part of a larger network of public organizations, and hence is owned by the State, or because it derives most of its income from social insurance funds, or, at the very least, because the hospital is

subject to the regulatory authority of the State (Frenk and Donabedian 1986). The hospital also faces a complex external economic environment. At its highest level of aggregation, this environment is formed by the overall economic situation of a country. For example, economic crises impose several constraints that require creative responses on the part of both private and public hospitals. At a more immediate level, the hospital interacts with various product and factor markets. Because this paper focuses mainly on issues of staffing, the variable that we consider most important in this respect is the structure and dynamics of the labor market, particularly the professional labor markets from which the hospital must recruit its managers and clinicians. In addition to the political and economic variables shown in Figure 2, the external environment of the hospital is defined by the epidemiological context of the area. As will be discussed later on, when this context is in rapid transition it can severely strain hospital resources.

Moving to the internal situation of the hospital, the most important political aspects of organization design are those that specify the legitimate power and authority relationships between physicians and managers. In turn, the economic dimension centers around the design of the production process. There are several economic models attempting to understand the hospital as a firm (Jacobs 1974). For example, Harris (1977) has presented a model based on internal supply and demand functions. Regardless of which model is adopted, some of the basic variables that need to be understood in the internal economic organization of the hospital include the definition of tasks (e.g., the mix of routine and nonroutine tasks), the division of labor, the service production functions, and the systems for assuring the quality of the product.

Figures 1 and 2 should not be seen as rigid depictions of what are really very complex processes. They are not the only possible representation of these processes either.¹ Instead, our conceptual framework is meant simply as a guide to the identification and analysis of more specific research issues.

BASIC ISSUES

In a first approximation, it is possible to identify three major groups of issues that can orient the formulation of a research agenda on hospital management. One group refers to issues of measurement. Indeed, it is necessary to develop and test specific and sensitive indicators of the various elements that are shown in Figures 1 and 2, especially the three types of efficiency that we have proposed. The second and largest group of issues are substantive. In accordance with our general framework of analysis, these include three subsets: (a) those that refer to the relationships of the hospital with its external context; (b) issues about the internal organization design; and (c) those that have to do with the core of organizational performance. Finally, the third large group of issues are related to the training of hospital managers for efficiency. We will next examine each group of issues, so that we can then proceed, in the last section of this paper, to outline a research agenda.

Measurement Issues

Because of the nature of this paper, we will not go into great detail in the analysis of the issues that deal with the operationalization and

¹ For a different though related approach, see Kovner and Neuhauser (1983).

measurement of the concepts proposed in our analytical framework. It should be pointed out, however, that a great amount of methodological work is required in order to answer such basic questions as the following:

- What are sensitive and specific indicators of managerial, clinical, and service production efficiency?
- How can one assess such attributes as managerial or clinical judgement, skills, and autonomy?
- What is the appropriate measure of hospital output? If services are considered, how should one account for the groups of activities that go into a hospital day? Should certain by-products of the hospital, such as information, professional education, research, and referral, be included? If output is conceived in terms of health status, what measures are there available to solve the problem of attribution, so that a change in health status is validly related to hospital care?
- Given the multidisciplinary nature of hospital care, how can one relate each output to the contribution of distinct inputs? Conversely, how can one assign specific portions of an input (e.g., time equivalents of physicians) to the production of multiple outputs?

These are just a few of the methodological issues that would need to be solved in any specific study of hospital performance.

Substantive Issues

External Environment. Whole disciplines are devoted to the study of the epidemiologic, economic, and political conditions that prevail in a society. On the other hand, our main interest focuses on the performance core of hospitals, especially as it is affected by training and staffing. Hence, our analysis of the external environment of the hospital will

necessarily be limited. Nevertheless, it is fundamental to keep in mind that no research agenda on managerial, clinical, or production efficiency can be complete without at least some consideration to the environmental conditions that shape the organization.

A first problem arises in the precise definition of what is external and what is internal. Indeed, defining the boundaries of any organization, and especially of a human service organization such as a hospital is not a straightforward matter (Hasenfeld 1983). For instance, it could be stated that one of the guiding principles of the primary health care approach is to deliberately blur the organizational limits of health care facilities so that they outreach into the community with active programs of health promotion, disease prevention, and early detection of cases. As Miles et.al. (1982) point out, "the definition of the organization's boundary should be consistent with the problem under investigation." In our case, the purpose is to operationally distinguish between those processes that take place within given hospitals and those that are external to any individual hospital.

Bearing the foregoing caveats in mind, we can proceed to consider some issues that derive from the epidemiologic, economic, and political environment of hospitals.

Epidemiologic Environment. The fundamental issue here refers to the capacity of hospitals to adapt to changing patterns of morbidity and mortality in the community. This issue is particularly salient in some developing countries that are experiencing a complex epidemiologic transition (Soberon et.al. 1986). It is beyond the scope of this paper to make a detailed analysis of the present characteristics and likely evolution

of this transition. Suffice it to point out the following critical problems:

-- What information systems can hospitals devise to opportunely identify new trends in basic epidemiologic and demographic variables?

-- What economically feasible schemes are there to convert current hospital capacity so that it responds better to the aging of the population and the emergence of chronic ailments? What new linkages must hospitals develop with other health care facilities so that they can provide the necessary continuity for the long-term management of chronic diseases?

-- How must the staffing of hospitals adapt to new epidemiologic and demographic contexts? Is it possible to retrain specialists so that they can take care of different conditions or age groups? What is to be done with specialties that become epidemiologically obsolete (witness, for example, the case of phthisiology and of tuberculosis hospitals)?

Political Environment. Out of the whole gamut of political variables that confront a hospital, we will concentrate on those that have to do with its relationship to the State.² In a long process that began approximately in the eighteenth century (Foucault 1977; Rosen 1972), the State has become the largest owner, payer, or regulator in the health industry of practically every country, so much so that Donnangelo speaks of the "universality" of State intervention in medical care (1975, p. 4). In fact, it would be impossible to understand the dominant role of hospitals without reference to the fact that, especially since the 1950s, a growing number of governments

² As has become increasingly customary in the literature, we adopt the narrow definition of the State as the institutions of government providing the administrative, legislative, and judicial vehicles for the actual exercise of public authority and power, instead of the broad definition of the State as the total political organization of a society, including its citizens.

adopted and stimulated a paradigm of medical care based on specialty care of high technological complexity in hospitals (Zrenk 1983). Likewise, the current concern with the high cost and low coverage of hospitals has been largely prompted by governments that begin to shift towards a new paradigm based on the tenets of primary health care. Even the search for formulas to stimulate private sector participation in the financing and provision of health care have many times been conducted by governments that seek to reduce their financial risk in this area. In fact, those countries have adopted explicit formulas to reduce State intervention have found that the public sector still remains as the principal actor in the health field (for example see Klein 1984).

There are two major spheres in which the relationship between the State and the hospitals has direct consequences over the performance of the latter. The first one refers to the reimbursement formulas, which have been shown to affect the internal power equilibrium between managers and clinicians (Young and Saltman 1983; Spivey 1984). The second deals with the limitations that government imposes on managerial autonomy, especially in public hospitals that form part of larger bureaucracies such as ministries of health. ³ A number of important issues derive from these two spheres:

-- What reimbursement mechanisms exist that will generate incentives for managerial and service production efficiency, without reducing clinical efficiency?

³ Actually, such limitations on managerial autonomy also appear to take place in private multihospital systems (Weil and Stam 1986). Thus, an important question for research would be to find out whether the critical variable is the type of ownership of the hospital -- public versus private -- or the existence per se of an additional layer of managers that control several hospitals.

-- Should the State attempt to control hospital performance mostly through incentive systems based on reimbursement, or should it attempt more direct supervision and control? What is the role of consumer groups in this process? How can accountability to the public be maintained in government-run hospitals?

-- In the case of public hospitals, should goals be set by each hospital, or should this be a function of the larger public organization to which the hospital belongs? Should ministries of health actually run hospitals, or should their role be limited to setting, enforcing, and supervising standards of care? What mechanisms are there to increase managerial autonomy in public hospitals? What are the consequences of decentralizing goal-setting and operating authority to hospitals in a previously centralized system? What formulas are there to monitor performance in a decentralized public system?

Economic Environment. Issues dealing with the economic environment of the hospital will be approached at two different levels. The first one refers to the overall economic situation of a country. The second one has to do with the immediate environment represented by the markets in which the hospital must act.

The fundamental issue at the higher level of analysis is the adoptive response of hospitals to situations of economic crises such as the ones faced by many developing nations. Economic crises seem to have a dual effect on hospitals. On the one hand, health conditions tend to deteriorate so that the need for hospital services increases. At the same time, however, the standard policy response to such crises has been to cut budgets for social programs, including health care (Brenner 1979; Brenner and Mooney 1983; Soberon et.al. 1986). Public hospitals face an additional burden,

since they have to absorb part of the demand previously satisfied by private facilities that a growing number of clients can no longer afford. As hospitals in many countries attempt to deal with this complex set of strains, several important research questions emerge:

-- What are the cost savings and effectiveness of alternative modes of providing services that have traditionally been the domain of general hospitals, such as normal deliveries or minor surgery? Is it economically and clinically feasible in developing countries to shift to alternative settings for care that may satisfy a larger volume of demand at lower costs (e.g. "birth centers" or ambulatory surgery centers)?

-- What are the effects of new methods of financing, such as community prepayment schemes, which can be implemented to deal with some of the consequences of economic crisis on the utilization and financing of hospitals?

-- What mechanisms can be designed to improve the flow and control of material resources within hospitals so that waste can be prevented?

-- More generally, what is the repertoire of survival strategies that hospitals must employ under conditions of economic strain?

Intimately linked to this last question is the whole issue of the ways in which hospitals participate in the product and factor markets that form their immediate economic environment. As we pointed out earlier, our current focus on issues of staffing makes it necessary to restrict the discussion specifically to labor markets.

The entire world has witnessed a dramatic increase in the supply of physicians. As Kindig and Taylor (1985) demonstrate, this increase has occurred in countries at all levels of economic development. From 1950 to 1979 the number of physicians per 10,000 people grew by 96% in

industrialized countries, by 223% in centrally planned economies, by 164% in middle income nations, and even by 29% in low income countries. The growing supply of physicians changes the operating environment of the hospitals in two fundamental ways. First, it gives the hospital, as an employer, greater leverage to impose working conditions that are more favorable to its interests. Second, as the competition for profitable clinical positions increases, it is likely that more doctors will shift from patient care to management (Tarlov 1983). Indeed, it has been shown that physicians' career preferences are significantly affected by their perceptions of the medical labor market (Frenk 1985). As the conditions in this market become more difficult for doctors, they will increasingly seek stable employment through salaried positions, with less clinical autonomy, larger managerial responsibility, and greater stratification within the medical profession (Freidson 1985). Furthermore, to the extent that in many developing countries the increasing supply of physicians has not been accompanied by a similar growth of paramedical and technical occupations, it is not unrealistic to expect that some doctors will fill less skilled positions in the hospital, giving way to a new kind of medical underemployment. In sum, the main issues that derive from the foregoing considerations can be synthesized as follows:

-- What are the implications of an increasing supply of physicians for the hiring and staffing practices of hospitals? Should the substitution of physicians for less skilled positions be allowed and even encouraged? Should hospitals expand their staffs of residents to accommodate the growing demand for graduate medical education, or should they strictly maintain the number that they require to fulfill their medical care functions?

-- In order to contain competition, practicing physicians are likely to impose barriers to the attainment of hospital privileges by their younger colleagues. Should management intervene to reduce such barriers? Should it press for an increase in salaried positions at the hospital?

-- Faced with a choice between physicians and administrators as the senior managers of the hospital, what criteria should guide the higher authorities in their hiring policy? Should physicians be preferred, as they are in many countries, simply because they have the knowledge about the substantive functions of the hospital? Or should managerial efficiency be the guiding criterion?

As can be seen, some of these issues begin to have a direct bearing on the design of the hospital, a topic to which we turn next.

Organization Design. Organization design has been defined as "the way authority, responsibility and information are combined within a particular organization" (Kimberly et.al. 1983). A design allows "to tailor the organization so that it can monitor its environment and respond to the constraints and opportunities presented by the environment..." (Kimberly et.al. 1983) and to achieve coordination and integration of tasks across parts of the organization (Lawrence and Lorsch 1967).

There are two main issues that determine different types of designs: how activities should be grouped within the organization and how decisions will be made. In fact, these issues illustrate two different analytical dimensions of the same concept. On the one hand, the organization design is represented by the structure, i.e., the type, number, and size of units, spans of control, and the arrangement of units along the lines of authority. On the other, one can identify the more subtle and dynamic elements of a design, such as degree of centralization-decentralization, standardization,

formalization, mechanisms for coordination, communication and control, as well as rewards systems.

This section will be focused mainly on the structural issues. Since there is a more evident relationship between the more dynamic elements of the organization design and organizational performance, these will be analyzed in the following section.

Three types of structures have been traditionally identified: functional, divisional, and matrix (Daft 1983). Functional structure means a division of labor into departments specialized by functional areas, i.e., departments of surgery, medicine, nursing, medical records, and so on. Kimberly et.al. (1983) mention that this type of structure is more common in relatively small (100-200 bed) community general hospitals. On the other hand, divisional structures are organized around services having, in many cases, their own clinical and administrative support services. This type of structure may be seen more often in large teaching hospitals (Howe 1969). Finally, matrix structures are the most infrequent ones in hospitals. They are characterized by a dual authority system designed to improve lateral coordination and information flow across the organization (Neuhauser 1972; Gray 1974).

All of these possible configurations might respond to traditional arrangements of the structure rather than to actual environmental demands or to the need to improve organizational performance (Mintzberg 1981). If one considers the possible role of hospitals in primary care provided through outreach programs, one could ask which of these structural alternatives is the most appropriate (Shortell 1984; Aday 1984).

In addition, it is very important to consider the particular characteristic of hospital structures where two chains of command coexist.

For Mintzberg (1981), hospitals are a "professional bureaucracy," since their structural configuration relies on trained professionals who must be given considerable control over their own work. In this case, one can identify parallel hierarchies, one for the professionals and another for the support staff.

The existence of two main chains of command in hospitals -- medical staff and administration -- has been well documented by several authors in developed countries (Perrow 1961; Georgopoulos 1962; Bucher and Stelling 1969; Engel 1969; Scott 1973; Robb 1975; Longest 1980; Shortell and Evashwick 1981; Scott 1982; Leatt et.al. 1983; Kinston 1983). However, in developing countries the high predominance of clinicians over professional managers in hospital administration might blur the limits between the two hierarchies. This is even more so when one considers that in most government-owned hospitals physicians are salaried; therefore, they are accountable not to the medical staff organization but to the administration.

From all these aspects of the structural dimension of organization design in hospitals, several issues can be identified:

-- Since physicians predominate in top administrative positions, can two chains of command still be clearly identified? Is the scope of their expert power clinical, managerial, or both? How is this situation influencing the professional autonomy of clinicians and professional managers?

-- What structural arrangements are necessary to improve the balance between these two groups so that technical expertise in medicine and administration can be better allocated?

-- Within this particular type of structure, how and by whom are the goals of the hospital defined?

-- Communication between members of different professional groups in hospitals has always been a difficult task, not only because of their different backgrounds but also because of deficiencies in organization design (Robb 1975). This is also true with regard to communication between providers and clients. How can hospital organization be better designed to improve the flow of information between departments, providers, and clients? (Hasenfeld 1983).

-- What are the different implications of the organizational design of private versus public hospitals for clinical, managerial, and production efficiency?

-- What are the advantages and disadvantages of functional, divisional, or matrix structures for hospitals in developing countries?

-- What might be the best alternatives for structuring the hospital organization according to their external context, size, and types of services provided?

-- In light of the goal of "Health for All by the Year 2000," what are the best alternatives for designing the hospital organization, so as to provide better access and utilization of hospital resources by the population?

-- Which environmental variables have major effects on hospital design? What is their impact? How are these variables operating to influence hospital design in developing countries?

Organizational Performance. Improving organizational performance is perhaps the most important challenge to any hospital administrator. Shultz and Johnson (1976) have proposed some selected managerial practices for improving performance. These practices were grouped within three main

areas: management of quality, management of costs, and management of conflict.

Management of quality involves, among other things, the implementation of assessment and monitoring systems and quality assurance mechanisms based on a sound organization design. The latter includes managerial decisions regarding the degree of standardization and formalization of clinical and non-clinical tasks, the degree of decentralization, and the implementation of adequate coordination and communication mechanisms through the development of quality assurance programs. Furthermore, managerial decisions have to be made regarding the types of incentives and specific control mechanisms for clinical performance.

Another very important aspect of the management of quality is the issue of staffing. Several authors have studied the relationships between hospital medical staff organization and the quality of care (Shortell and Lo Gerfo 1981; Flood and Scott 1978; Roemer and Friedman 1971).

On the other hand, staffing is also a relevant aspect of the management of costs. Pauly (1978), Garg et.al. (1979), and Sloan and Becker (1981) have analyzed different aspects of the relationship between medical staff and costs. The ratio of management to production personnel as it affects the efficiency of hospitals has been studied by Rushing (1974).

Scott and Shortell (1983) have made an extensive review of the literature on these topics under two major areas: effectiveness (quality of care) and efficiency. These include the management of quality and the management of costs. It is very important to mention that both managerial practices require a well designed information system that allows managers to obtain a real image of hospital performance so that decisions are made on a more solid basis.

Management of conflict is of paramount importance in hospitals given the different professional groups involved in patient care. Organization design, along with goal setting and negotiating skills, are the best elements for managing conflict. Again, a neat organization design tends to improve communication and coordination and to prevent conflict by defining authority and responsibility among hospital staff.

Finally, organizational performance seems to be associated with a linkage to the organizational environment, an appropriate organization design, and the existence of information systems that provide awareness of organizational functioning and the opportunity to take corrective action (Scott and Shortell 1983).

Many issues could be raised around organizational performance. Some of them have already been mentioned in other sections of this paper, particularly with regard to the relationships between the organization and its external environment and some aspects of the organizational design. Nevertheless, there are still other relevant issues that deserve some consideration:

- Which are the most common mechanisms in developing countries to link hospitals with their external environment?

- What is the role of community members in the administration of hospitals?

- What should be the composition of hospital boards?

- Since quality assurance experiences are only beginning in many developing countries, what might be the strategies for implementing quality assurance programs? What might be the characteristics of an information system in order to run an efficient and effective quality assurance program?

-- Three types of quality assurance systems can be identified according to the degree of decentralization and involvement of hospital staff: centralized, decentralized nonparticipative, and decentralized participative (Ruelas 1986). What should be the degree of decentralization for quality assurance activities? What are the best mechanisms for involving hospital staff in quality assurance programs?

-- How much standardization and formalization of professional activities is necessary to assure quality of care?

-- What might be the incentive for clinicians to increase their compliance with standards of care?

-- Who should supervise the different professional activities within the hospital?

-- What should be the adequate ratios of general practitioners/ specialists, doctors/nurses, clinical personnel/support personnel, according to case mix in developing countries, in order to maintain an efficient level of hospital performance?

-- What should be the criteria for establishing a medical staff/ residents ratio that assures adequate supervision and quality of care?

-- How can the participation of clinicians in hospital-wide decision making be improved?

-- What kind of coordination and communication mechanisms might be implemented among hospital departments in order to prevent conflicts and improve continuity of care?

ISSUES RELATED TO THE TRAINING OF HOSPITAL MANAGERS

In accordance with the framework proposed in this paper, managerial efficiency is a result of three main components: managerial decision making,

skills, and autonomy. We have already mentioned several aspects of managerial decision making directed at improving hospital performance, as well as some issues regarding the relative professional autonomy of managers within the hospital structure.

According to Katz (1974), there are three kinds of skills necessary for an effective administrator to adequately perform his or her role: conceptual, technical, and human skills. On the other hand, there are several studies that attempt to elucidate the different types of roles that administrators perform (Mintzberg 1975; Kuhl 1977; Allison et.al. 1983).

The development of managerial skills to adequately perform different roles depends on two important aspects: experience and training. Given the complexity of hospital administration, learning through the day to day experience might be a trial-and-error process that is very costly for the organization. On the other hand, even though formal training cannot substitute field experience, it provides a broader frame of reference for decision making and facilitates the learning process from field experiences.

Ruelas and Leatt (1985) have proposed that training programs should be designed considering three aspects: the level of the executive within the structure, and the kinds of roles to be performed to deal with these problems. At the same time, the development of conceptual, technical, and human skills should also be considered according to the hierarchical level of the hospital executive. Specific programs and contents can then be established.

It is interesting to mention that hospital administration is a relatively new discipline. Hospitals in North America have been under the domination of different groups (Perrow 1961). At some point in time trustees dominated. The basis for their control was primarily financial.

Then, major decisions had to be based upon a medical competence that trustees did not possess, so physicians became the dominant group. When hospitals became more complex organizations and needed more coordination, hospital administrators acquired increasing power.

This evolution might not be the same in developing countries, where physicians still tend to dominate and where hospital administration is not well established yet. The implications of this situation are twofold: first, there is a need to provide clinicians with a better understanding of hospital administration so that they can improve their managerial performance; second, it is necessary to professionalize health care management by developing formal training programs in this field, which by necessity will include physicians as well as other occupational groups.

Different alternatives for providing adequate training in hospital administration have to be better explored in developing countries, namely, master's, doctoral, continuing education, and even undergraduate programs. Sending students to developed countries represents a different kind of alternative that must also be considered.

The following issues illustrate just some of the major questions that need to be answered:

-- How are managerial problems perceived by hospital executives at different levels of the hierarchy and different types of hospitals in developing countries? How can training programs be designed to take account of such variation? What should be the main contents?

-- As training programs for health services administrators face growing competition from programs in business administration, one response has been to emphasize the strictly managerial aspects in the curriculum, at the expense of health contents such as epidemiology. If, however, hospitals

must respond to their changing epidemiologic environment, this trend could have very negative consequences. What new training approaches can be devised so that future health care managers do receive the complex contents of managerial science, while at the same time preserving the fundamental concepts and methods of epidemiology? If such an integrative approach is not feasible, would it then be necessary to have an epidemiologist in the senior management group of a hospital?

-- How should existing training programs in health care administration respond to the increase in the number of physician administrators? Should new programs, different from the traditional master's degrees, be designed to meet the special backgrounds and needs of physicians?

-- Regarding the level of training, would undergraduate programs in hospital administration be useful? Should professionally oriented or academically oriented postgraduate programs be predominant in developing countries? Should there be a sharp distinction between both types? What should be the role of master's, doctoral, and continuing education programs in order to meet the need of training hospital administrators in developing countries?

-- How convenient are residency periods, under what circumstances, and for how long?

-- Is there enough faculty in developing countries to support high quality education in hospital administration? What might be the strategies for faculty development?

-- How useful is the training of professionals in foreign countries, as opposed to concentrating on their national experiences? What strategies should be considered to assure that experiences obtained abroad will have an

impact in the country of the trainees when they return? How useful are exchange programs between developed and developing countries? What should be done in order to take advantage of such programs so as to achieve a balance between academic quality, on the one hand, and relevance to the context of the trainee, on the other?

TOWARDS A RESEARCH AGENDA

Most of the issues that we have discussed throughout this paper represent important topics for research. The fact that we posed them as questions was intended, precisely, to emphasize their researchability and to convey the sense that it is necessary to seek answers through sound studies. The problem, of course, is that the number of issues is too large to constitute a workable research agenda. It is necessary, therefore, to establish priorities. In this last section of the paper we will briefly sketch what such priorities might be.

A first consideration in designing a research agenda on a topic such as hospital management is to strive for a balance between **relevance** to decision making and **excellence** in the strict adherence to the norms of scientific research (Frenk et.al. 1986). Within this broad guideline priorities must be defined on two aspects: the type of research and the topics to be researched.

With respect to the former, we believe that the order of priorities should begin with observational studies that document levels of hospital performance and correlate them with organization design and environmental variables. Apart from offering basic descriptions that are much needed, especially in developing countries, such studies would make it possible to operationalize and measure the constructs that we have proposed in our

analytical framework. As indicated in the section on measurement issues, it is particularly important to devise and test sensitive and specific indicators of managerial, clinical, and service production efficiency. In addition, it is necessary to determine the internal and external correlates of these dimensions of performance.

Observational studies would make it possible to diagnose the most critical areas for the second type of research, namely, intervention studies that would introduce planned change in hospitals and would assess its consequences. It is fundamental that intervention studies be based on comparative designs. Indeed, a problem with evaluations of the effectiveness of specific interventions is the frequent lack of control groups, which makes it impossible to attribute any observed change to the intervention itself, rather than to another source of variation. The external validity of these types of studies is also often threatened by the choice of highly specific sites that make it very difficult to generalize the findings and to truly build a body of knowledge. If the ideal randomized trials cannot be achieved, then quasiexperimental designs with clear control groups should be used. These kind of studies should be complemented by cost/benefit and cost/effectiveness analyses of the interventions (Wortman 1983).

Turning to the priorities on the topics for research, it must be stated, at the outset, that any ranking of topics is doomed to seem arbitrary, unless it is based on some explicit method to poll the perceptions of large numbers of experts and consumers of research. Nevertheless, we will attempt to offer what we believe is a preliminary list of the most urgent areas for inquiry, particularly in developing countries.

The first need is for good descriptive studies of the hospital system and of the main aspects of organization design. In many developing countries we are lacking the most basic information on the composition and characteristics of hospitals. Critical items that are often not known include the exact magnitude of the private sector, the proportion of total health care resources that is absorbed by hospitals, and the unit costs for specific hospital services, to name only a few. Furthermore, there is a lack of data on the structure of hospital organization. Whereas in developed countries extensive empirical studies have been conducted to define, for example, the two lines of authority, in many developing nations we are often ignorant of the ways in which formal and informal relations among managers and clinicians are structured. Likewise, it is necessary to know the frequency of different arrangements for internal communication, types of departmentalization, and management systems.

Beyond broad descriptions of the structure of hospitals in developing countries, the second priority refers to the systematic study of quality monitoring and assurance systems. In the final analysis, hospitals should be producing improvements in health, however we define it. The design and testing of explicit systems to assure the quality of care would therefore seem to be of the utmost importance if we are to gain some understanding of what exactly are hospitals contributing to society and at what cost. Such studies should include the analysis of the interactions between managers and clinicians, especially as they constrain clinical autonomy and decision making. As pointed out earlier in this paper, there are several variants of quality assurance systems for hospitals. Assessing their relative effectiveness and costs should be a high-priority item on a research agenda.

The third area for research centers around the social, personal, organizational, and educational determinants of managerial skill. Indeed, we need to know what are the factors that account for different degrees of success in managing a hospital. These studies should not be limited to psychological variables, although they should certainly include them. The challenge, however, is to ascertain the relative contributions to managerial skill of personal variables versus educational background and organizational structure. Clearly, this kind of study would have major policy implications for the recruitment and training of hospital managers, which in turn might help to alleviate the critical shortage of skilled management in underdeveloped countries.

Finally, the magnitude, repercussions, visibility, and universality of physician oversupply make this a high priority for research. In this respect, we are in need of studies about the structure and dynamics of medical labor markets, which would allow us to understand the origins of the oversupply of doctors and the reasons why it has occurred in such a wide variety of countries. The coexistence, in many nations, of medical underemployment with lack of universal access to medical care is probably the most eloquent indicator of the shortcomings of current ways of organizing health systems. Hospitals are undoubtedly a major part of this picture. We should therefore understand the consequences that the oversupply of physicians has for the operation and staffing of hospitals, and for the design of innovative training programs.

While still incomplete, this initial research agenda might begin to illuminate some of the basic issues that concern policy makers, managers, clinicians, and clients in the common search for higher levels of efficiency and equity in health care.

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